

Marc Estibeiro

The Sea Turns Sand to Stone

For Flute, Bass Clarinet, Piano and Live Electronics

Approximate Duration: 7'40"

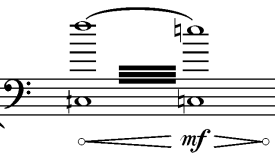
Score at Concert Pitch

Guide to Notation

General marks



ord. Ordinary articulation (cancels previous articulation)



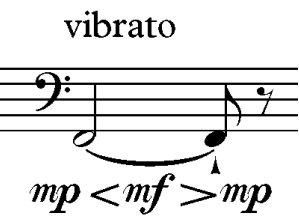
Tremolo, always played as fast as possible



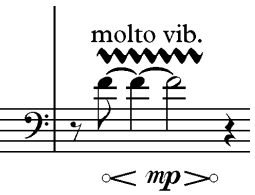
Trill, always to the indicated note



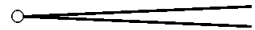
s.v. Senza vibrato – no vibrato



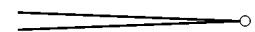
Ordinary vibrato



Very wide vibrato



Crescendo dal niente



Diminuendo al niente

Flute

Jet whistle

harmonic

whistle tone

tongue ram

flz.

f *fff* *f*

pp *mf* *pp*

ppp

f

mf

Jet whistle

Harmonic

Whistle tone

Tongue ram

flz.

Flutter-tongue

Bass Clarinet in B \flat

Unpitched air notes

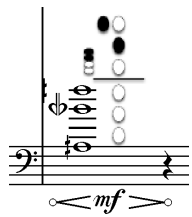
flz.

mf *f* *mf*

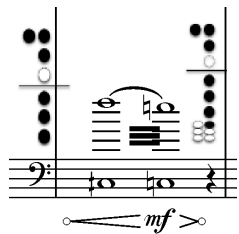
mf

Unpitched air notes

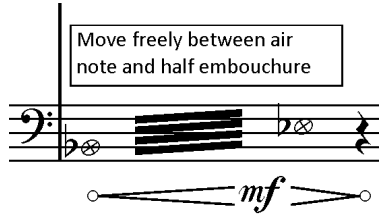
Flutter-tongue



Multiphonic (fingering indicated in example)



Tremolo between two multiphonics

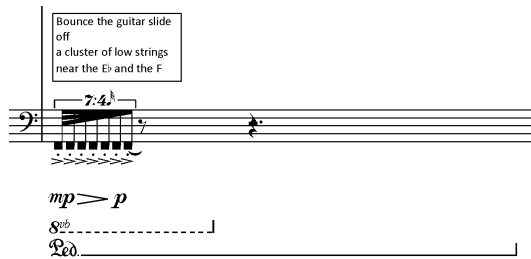


Move freely between air note and half embouchure

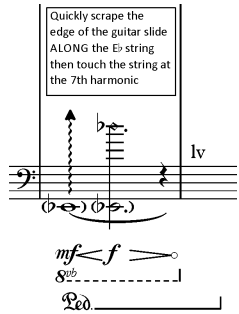


Slap tongue

Piano



Bounce a brass guitar slide off the strings near the indicated pitch. Pedal as indicated



Scrape the brass guitar slide along the indicated string, then touch the indicated harmonic

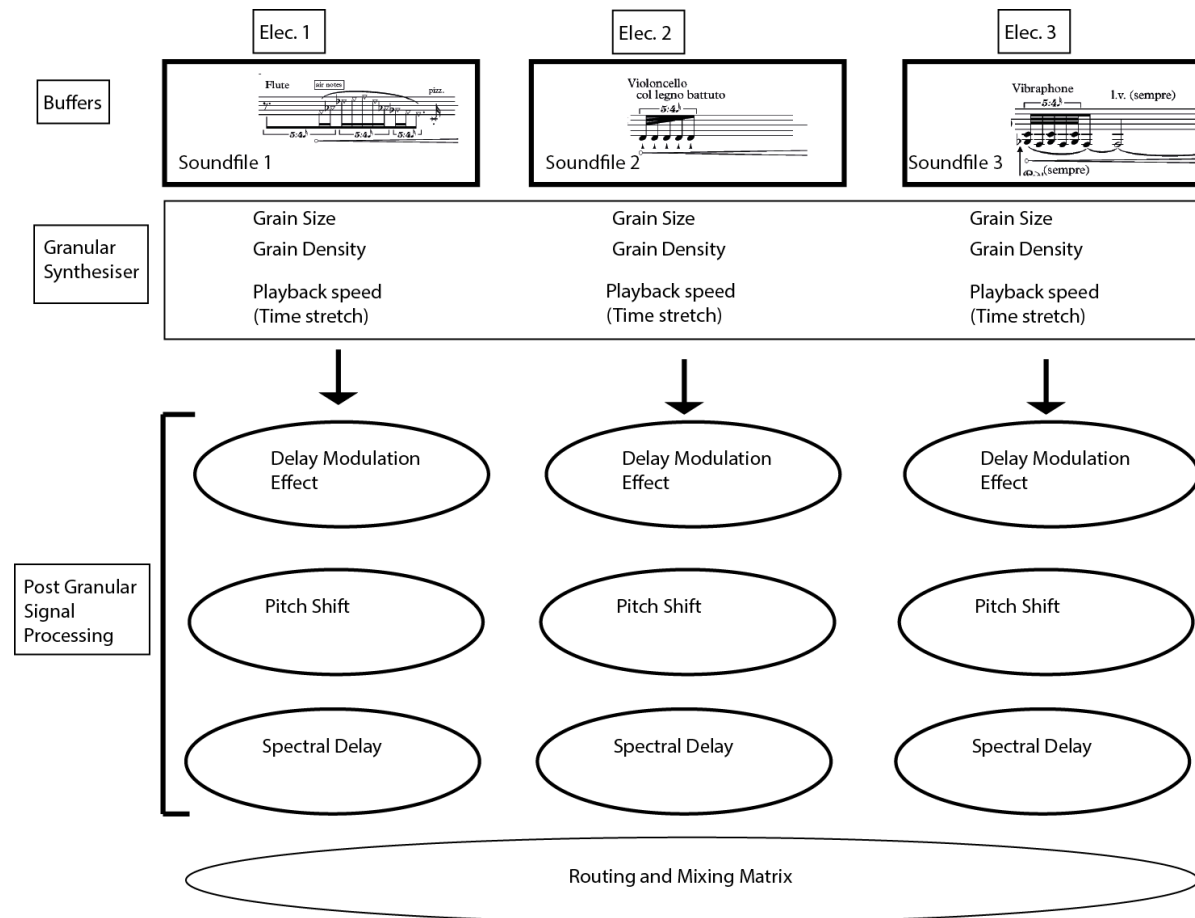
Scratch the E \flat string with the edge of the brass guitar slide around the point of the 7th harmonic

Scratch the indicated string with the edge of the brass guitar slide around the node for the indicated harmonic

Play the indicated note with the left hand and touch the appropriate node on the string with the right hand to produce a harmonic at the indicated pitch

Guide to the Electronics

The electronic part consists of a three-channel granular synthesiser. A broad overview of the software performance environment is shown below.



The level of the electronic part should be balanced to match the level of the acoustic instruments.

A small mixing desk is necessary in order to make minor adjustments to the levels during the performance.

The acoustic instruments should only be amplified if necessitated by the size of the performance space.

The electronic part requires a computer running Max v. 6 or above (www.cycling74.com), a suitable digital to analogue convertor, a mixing desk and amplification appropriate for the room. The Max patch is available from the composer on request.

Each of the three channels is followed by identical signal processing chains consisting of a delay modulation effect, a pitch shifter and a spectral delay. There is also a process which reorders elements within the soundfile (not shown in schematic). Each channel carries out real-time granulation of a soundfile. The soundfile is a pre-recorded gesture taken from the acoustic part. The first channel processes sounds from the bass clarinet, the second channel processes sounds from the piano, and the third channel processes sounds from the flute. These gestures should be recorded before the performance and edited to eliminate silence and discontinuities at the beginning and end of the recording. The recordings should match, as far as possible, the ambience of the room in which the performance will take place.

An example of the acoustic gestures used in the electronic part is shown below:

The image displays a musical score for an electronic part, featuring three staves. The top staff is a bass clef staff with a 'C' in a box at the beginning. A 'Cue 9' label is positioned above the first measure, with an arrow pointing to a 'slap tongue' event. The first measure contains a note with a 'fff' dynamic marking, followed by a 'mf' dynamic marking. A 'Time Stretch' label is placed above the first measure. The middle staff is a bass clef staff with a 'lv' (lip vibration) event marked above it. A 'Time Stretch' label is placed above the middle staff. The bottom staff is a treble clef staff with a 'timbral trill' event marked above it. A 'Time Stretch' label is placed above the bottom staff. The score concludes with a 'Partials Off' label in a box. The score includes various musical notations such as notes, rests, and dynamic markings, along with graphical elements like wavy lines and circles representing acoustic gestures.

Pre-composed events are triggered manually from the software environment using numbered cues. These are indicated on the score as shown in the example above.

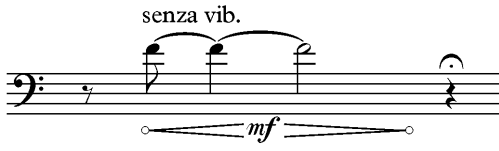
Although the events are pre-composed, all processing takes place in real time and there will be subtle but significant differences between performances. The timings shown on the score are for guidance only.

The pre-recorded sound-files processed by the three channels of the electronic performance environment are shown below:

Bass clarinet



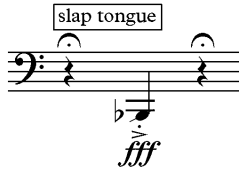
Bass clarinet F2 senza vibrato



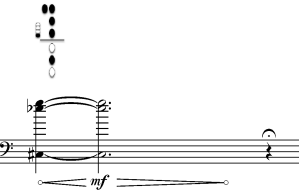
Bass Clarinet F2 senza vibrato



Bass Clarinet trill

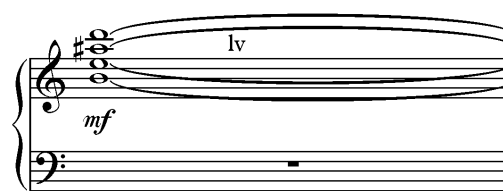


Bass clarinet slap tongue

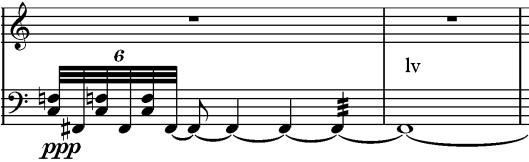


Bass clarinet multiphonic

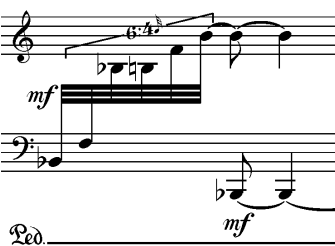
Piano



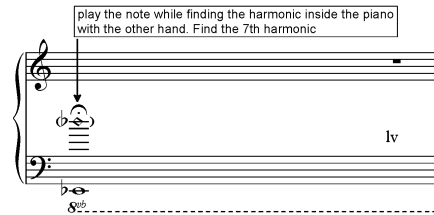
Piano chord



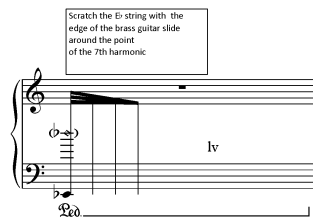
Piano iterative gesture



Piano pushing agitated gesture



Piano harmonic

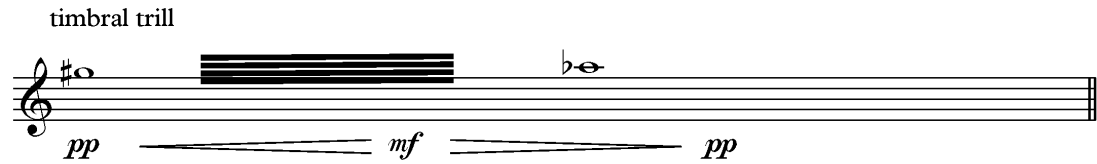


Piano harmonic and scraping gesture

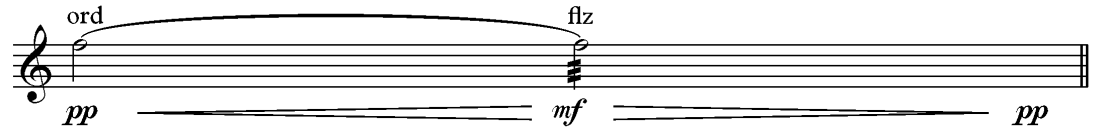
Flute



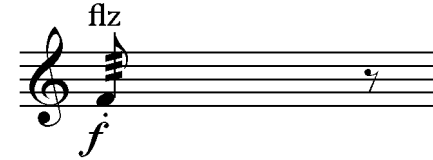
Flute F#6 harmonic



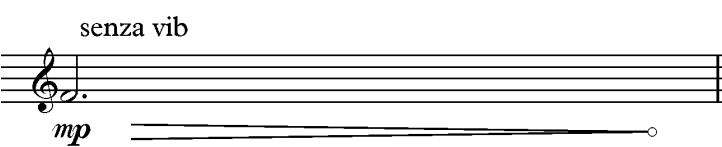
Flute timbral trill



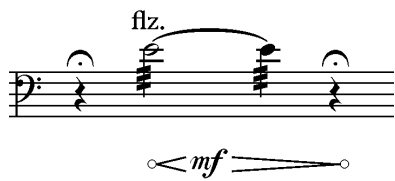
Flute ord. to flz



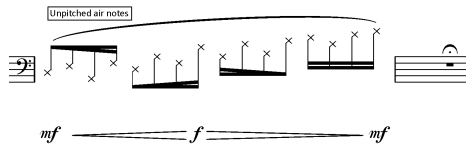
Flute short staccato flutter tongue



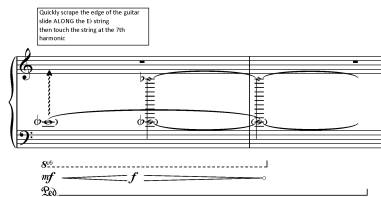
Flute senza vibrato



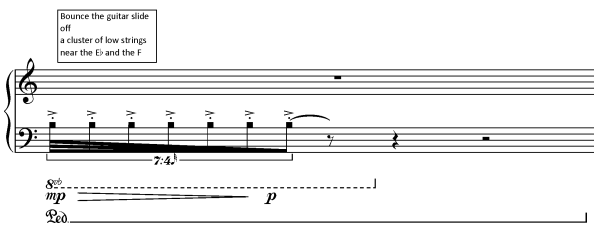
Bass Clarinet high flutter tongue



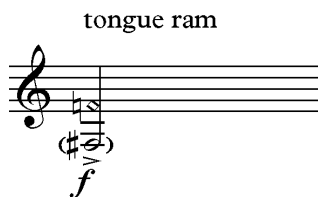
Bass Clarinet unpitched air notes



Piano scraping gesture then harmonic



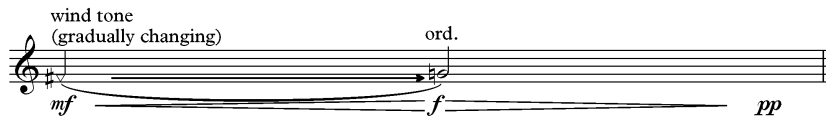
Piano slide bouncing off strings



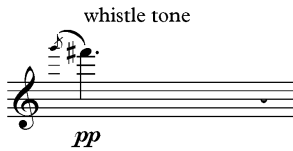
Flute tongue ram



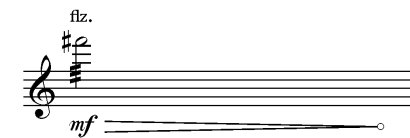
Flute pizzicato



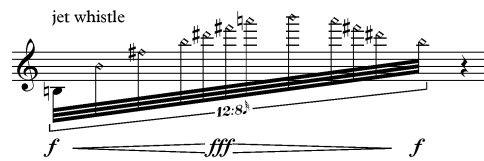
Flute wind tone to ord.



Flute whistle tone



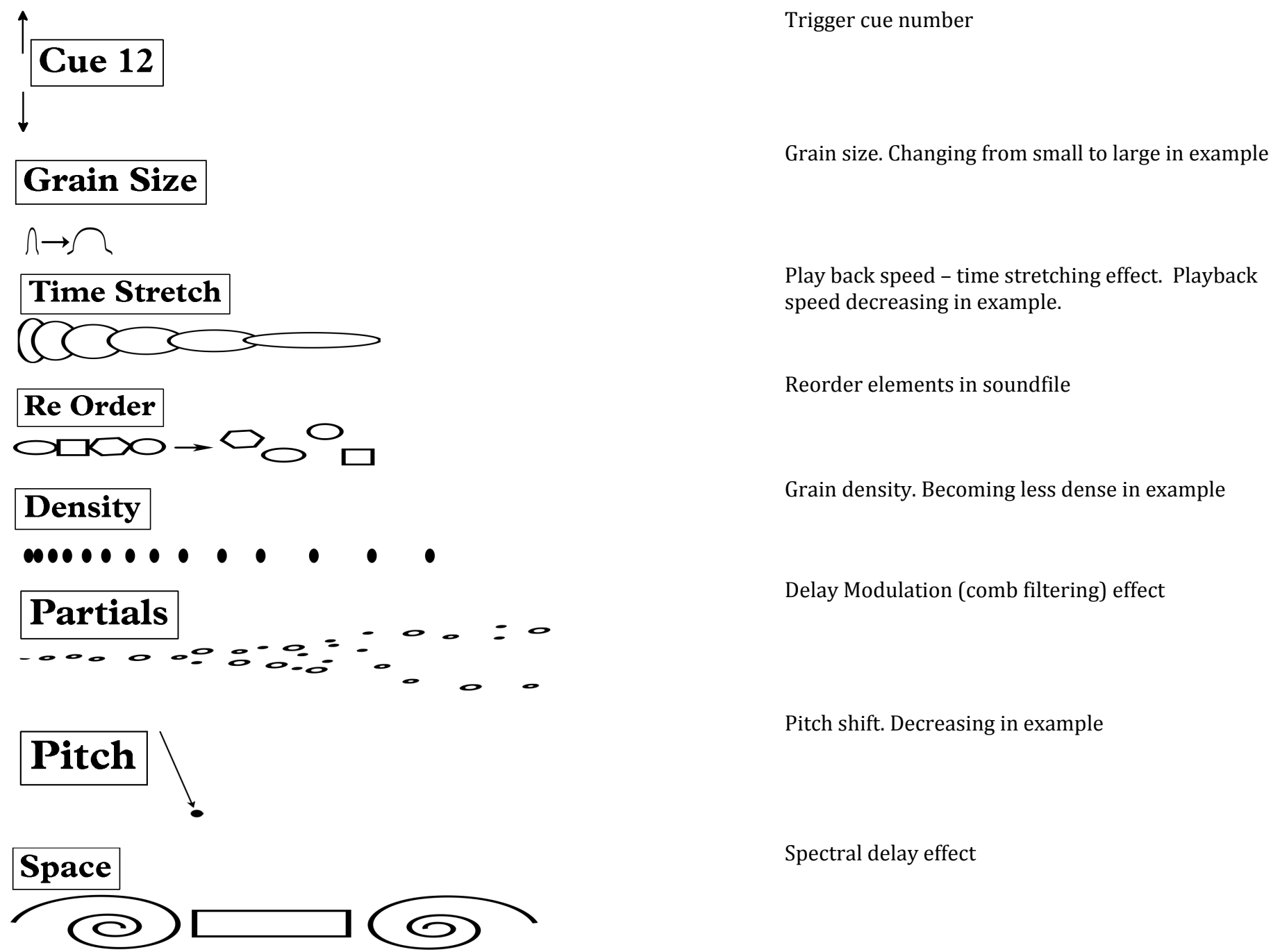
Flute high flutter tongue



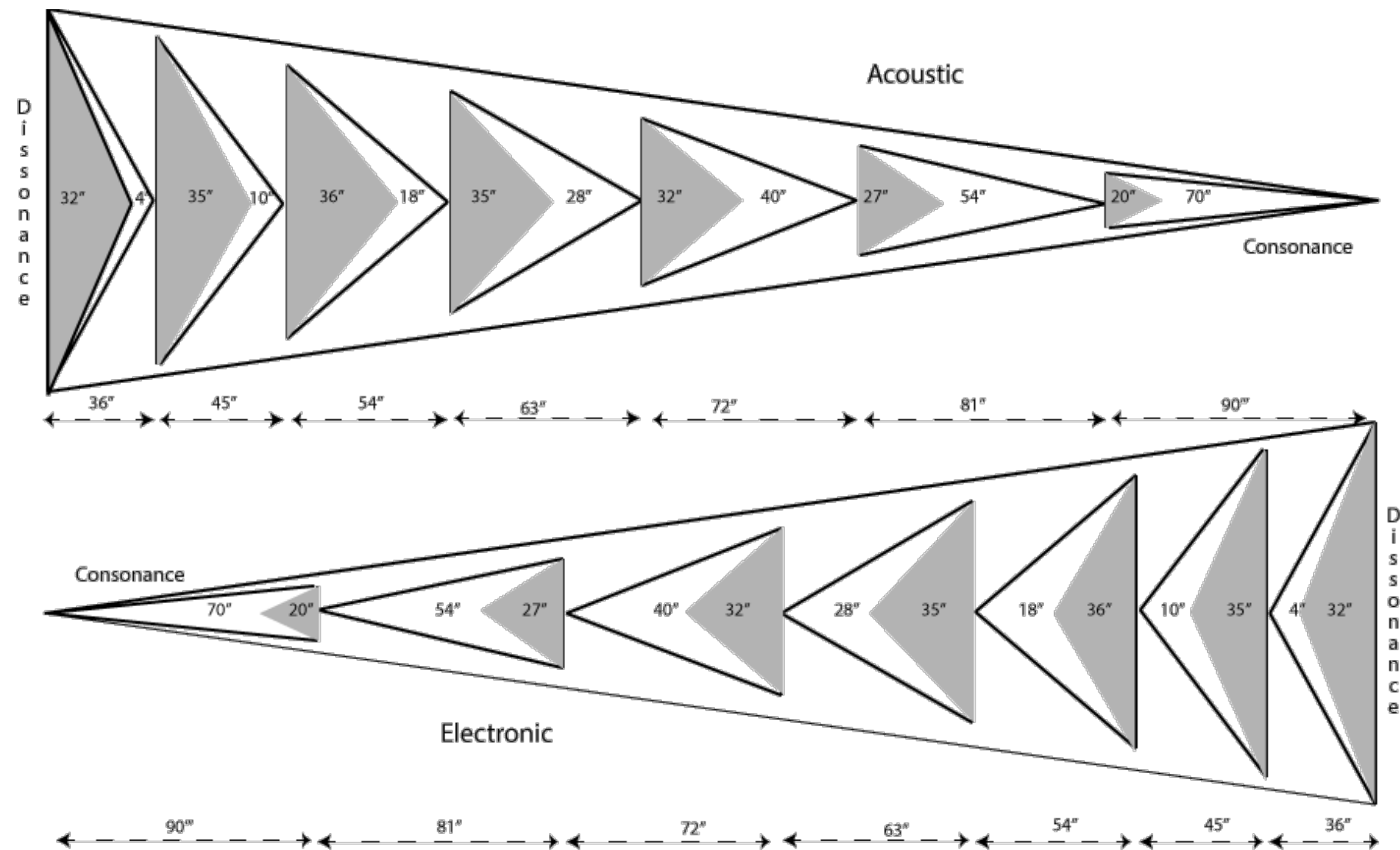
Flute jet whistle

Guide to Notation (Electronic Part)

A system of graphic notation has been used to indicate the electronic processes used and their resulting textures. Examples from the system are described below. The soundfiles are usually heavily processed and so any notated pitch references in the electronic part are for reference only. The processes are triggered automatically with the appropriate cue number so the graphics are representational only – they do not serve any performance function. A more detailed schematic appears after the main score.



The figure below shows a broad schematic that was used during the compositional process to structure the composition. The acoustic part moves from a state of disorder (“dissonance” in the schematic) to a state of order (“consonance”). The electronic part mirrors the acoustic part by moving in the opposite direction. The acoustic part has been written using a hierarchy of gestures that move from “noisy”/disordered towards “pure-sound”/ordered. A similar hierarchy has been used for the source material of the electronic part. It is important to note that the terms “consonance” and “dissonance” have been used here in a very broad sense to refer to a sensory consonance and a sensory dissonance rather than the more traditional use of the terms in the context of tonality. It should also be noted that the timings shown are for guidance only and will vary between performances. They should be considered as approximations rather than absolute values.



Instruments

Flute in C

Bass Clarinet in B ♭

Piano (with Brass Guitar Slide)

Live Electronics

(Computer running Max 6 or higher, audio interface, suitable microphones where appropriate, mixing desk and amplification)

The Sea Turns Sand to Stone

Intenso, Espressivo

0" = 60 5" 10" 15"

Flute

Bass Clarinet in Bb

Piano

Electronics

B.C., Piano, Flute

mf

mf *f* *fff* *f*

mf *f* *mf*

mp *p*

mp

mf

Unpitched air notes

Jet whistle

12:8

Unpitched air notes

sim 7:4

8vb

Lead.

Cue 1

Cue 2

Time Stretch

Time Stretch

2 20" 25" 30" 35" 40" 45" 50" 55"

flz. tongue ram flz. flz. tongue ram flz. tongue ram flz. flz. flz. tongue ram

mf *f* *f* *mf* 5:4 *f* *f* *mf* 6 *f* *mf* *f* *mf* 6 *f*

flz. *mf* *ppp* *mf* *ppp* *mf* *mf*

flz. *mf* *f* *mf* *f* *mf* *f* *mf* *f*

Move freely between air note and half embouchure

7:4 *mp* *p* *mf* *f* *mf* *f* *mf* *f* *mf* *f*

8^{vb} Ped. *mf* *f* *mf* *f* *mf* *f* *mf* *f* *mf* *f*

Quickly scrape the edge of the guitar slide ALONG the E_b string then touch the string at the 7th harmonic

Scratch the E_b string with the edge of the brass guitar slide around the point of the 7th harmonic

lv lv sim lv sim

Cue 3

Pitch

Time Stretch

Pitch

Flute *mf*

1'00" 1'05" 1'10" harmonic 1'15" 1'20" 1'25"

1'00": Treble clef, key signature of two sharps (F# and C#), measure with a half note G4, dynamic *f*. Bass clef, measure with a half note G2, dynamic *mf*.
1'05": Treble clef, measure with a half note G4, dynamic *ppp*. Bass clef, measure with a half note G2, dynamic *ppp*, articulation *flz*.
1'10": Treble clef, measure with a half note G4, dynamic *pp*, articulation *harmonic*. Bass clef, measure with a half note G2, dynamic *pp*, articulation *ord.*.
1'15": Treble clef, measure with a half note G4, dynamic *pp*, articulation *mf*. Bass clef, measure with a half note G2, dynamic *pp*.
1'20": Treble clef, measure with a half note G4, dynamic *mf*. Bass clef, measure with a half note G2, dynamic *mf*.
1'25": Treble clef, measure with a half note G4, dynamic *mf*, articulation *tr*. Bass clef, measure with a half note G2, dynamic *mf*.

1'05": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*, *Ped.*.
1'10": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.
1'15": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.
1'20": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.
1'25": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.

Cue 4

1'10": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*, *Ped.*.
1'15": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.
1'20": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.
1'25": Treble clef, measure with a half note G4, dynamic *lv*. Bass clef, measure with a half note G2, dynamic *mf*, articulation *8vb*.

Partials

Pitch

Space

1'20": Treble clef, measure with a half note G4, dynamic *p*. Bass clef, measure with a half note G2, dynamic *p*.
1'25": Treble clef, measure with a half note G4, dynamic *p*. Bass clef, measure with a half note G2, dynamic *p*.

2'00" whistle tone 2'05" 2'10" whistle tone 2'15" 2'20" 2'25" harmonic

5

ppp *molto vib.* *ppp* *flz* *senza vib.* *mp* *mp* *mf* *mp* *pp* *mf* *pp*

mp *mp* *mf* *mp* *mp* *mf* *mp* *mp* *mf* *mp*

pp *mp* *mf* *mf* *f* *pp*

pp *mp* *mf* *mf* *Ped.* *mf* *Ped.*

6:4 6

Cue 6

Pitch

Density

Pitch

Pitch

Density

Grain Size

mf

6 2'30" tongue ram 2'35" 2'40" 2'45" ord. harmonic 2'50" B 2'55" ord.

flz *f* *pp* *mp* *mf* *mp* *p* *p* *p* *pp* *p* *pp* *pp*

mp *mf* *mf* *f* *mf* *pp* *pp*

Pitch

Pitch

Density

Partials

Pitch

Time Stretch

Grain Size

B

3'00" 3'05" 3'10" 3'15" 3'20" 3'25" 7

flz ord. flz ord. flz ord. flz

mp *p* *pp* *pp* *mp* *p* *pp* *mp* *mf* *mp* *mf* *p*

slap tongue

pp *mp* *p* *pp* *pp* *mp* *p* *pp* *mp* *fff*

8^{va} loco

8^{vb} *pp* Ped.

Ped.

Cue 8

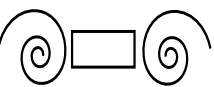
Density



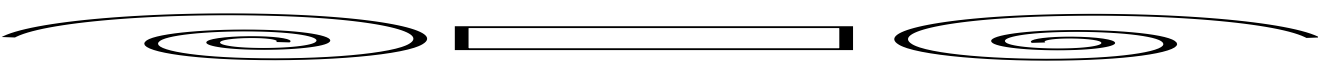
Re Order



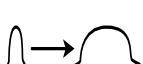
Space



Space



Grain Size



Density



8 3'30" 3'35" 3'40" 3'45" 3'50" 3'55" whistle tone

ord. flz ord. flz ord. flz ord. flz

mp 3 *p* *mf* *p* *mp* *p* *mf* *p* *mf* *mf* *mf* *p* *mf* *p* 5:4 *ppp*

slap tongue flz ord. slap tongue flz ord. flz ord. flz

mp *p* *fff* *mf* *p* *fff* *mp* *mf* *p* *p* *mf*

mp 3 *p* *pp* *mp* *p* *pp*

Ped. Ped. 8vb *pp* Ped.

Space Time Stretch Partial

4'00" **C** whistle tone 4'05" 4'10" 4'15" 4'20" 4'25" whistle tone 9

ppp *mf* *ppp* *ppp* *ppp* *ppp* *ppp*

mf *mf* *mf* *mf* *mf*

ppp l.v. *pp* *pp* *ppp*

loco *pp* *pp*

8^{vb} *pp* *pp*

Cue 9

Time Stretch

C slap tongue

fff *mf*

mf

lv *mf*

8^{vb} *mf*

timbral trill *mf*

Time Stretch

Time Stretch

Time Stretch

Partial Off

10 4'30" 4'35" 4'40" 4'45" 4'50"

flz ord.

mp *mf* *mf* *f* *mf* *mp* *mp* *mf* *mf* *f* *mf*

ppp *mf* *mp* *p* *mf*

mp *mf* *mp* *mf*

Ped. Ped.

Cue 10

11

D

f *mf*

p

pp < mp > pp

pp < mp > pp

p *pp*

pp < mp > pp

p *pp*

The musical score for 'The Rose Tree' is presented in a single system with two staves. The upper staff is in treble clef, and the lower staff is in bass clef. The key signature has one flat (B-flat), and the time signature is 3/4. The melody is written in the upper staff, and the accompaniment is in the lower staff. The score includes dynamic markings such as *mp* (mezzo-piano), *p* (piano), and *pp* (pianissimo). There are also performance instructions like 'Ped.' (pedal) and '6' (sixteenth notes). The piece concludes with a double bar line and repeat dots.

The diagram illustrates the structure of a musical score with two cues, Cue 11 and Cue 12. Cue 11 is divided into 'D' (Drum) and 'Space' sections. The 'D' section contains a bass line with a 'Grain Size' parameter and a 'Pitch' parameter. The 'Space' section contains a treble line with a 'Pitch' parameter. Cue 12 contains a bass line with a 'Pitch' parameter. The diagram shows the relationship between the parameters and the musical notation.

[illegible]

The diagram illustrates the relationship between musical notation and timbre. It features three staves:

- Top Staff:** Labeled "Density", it shows a series of black dots of varying sizes, representing the density of the sound.
- Middle Staff:** Labeled "Pitch", it shows a single dot, representing the pitch of the sound.
- Bottom Staff:** Labeled "Partials", it shows a series of dots, representing the partials of the sound.

Arrows indicate the flow of information: from the top staff to the middle and bottom staves, and from the middle staff to the bottom staff.

5'55" 6'00" 6'05" 6'10"

mp *mf* *mp* *p* *mp* *mf* *p* *mp* *mf* *p* *mp* *p* *pp*

mp *p* *mf* *mp* *p* *mf* *mp* *p* *mp* *pp*

mp *mp* *mp* *ppp*

Ped. *Ped.* *Ped.* *Ped.*

And.

3/4

B-flat

Cue 13

The image shows a handwritten musical score on a five-line staff. The score is written in a cursive, handwritten style. It begins with a treble clef and a key signature of one sharp (F#). The first measure contains a half note G4, followed by a half note A4. The second measure contains a half note B4, followed by a half note C5. The third measure contains a half note D5, followed by a half note E5. The fourth measure contains a half note F#5, followed by a half note G5. The fifth measure contains a half note A5, followed by a half note B5. The sixth measure contains a half note C6, followed by a half note D6. The seventh measure contains a half note E6, followed by a half note F#6. The eighth measure contains a half note G6, followed by a half note A6. The ninth measure contains a half note B6, followed by a half note C7. The tenth measure contains a half note D7, followed by a half note E7. The eleventh measure contains a half note F#7, followed by a half note G7. The twelfth measure contains a half note A7, followed by a half note B7. The thirteenth measure contains a half note C8, followed by a half note D8. The fourteenth measure contains a half note E8, followed by a half note F#8. The fifteenth measure contains a half note G8, followed by a half note A8. The sixteenth measure contains a half note B8, followed by a half note C9. The seventeenth measure contains a half note D9, followed by a half note E9. The eighteenth measure contains a half note F#9, followed by a half note G9. The nineteenth measure contains a half note A9, followed by a half note B9. The twentieth measure contains a half note C10, followed by a half note D10. The score ends with a double bar line. There are some additional markings, including a 'flz.' (flauto) marking above the staff and a 'mf' (mezzo-forte) marking below the staff.

14 6'15" 6'20" 6'25" 6'30" 6'35" 6'40"

ord. s.v. vibrato s.v. vibrato flz s.v. ord. vibrato vibrato s.v. vibrato s.v. vibrato s.v. vibrato

p *mf* *mp* *p* *mf* *mp* *p* *mf* *mp* *p* *mf* *pp* *mp* *pp*

vibrato vibrato vibrato s.v. s.v. s.v.

mp *mf* *mp* *mp* *mf* *mp* *mp* *mf* *pp* *p* *pp* *p* *pp*

mp *p* *p* *pp* *pp*

pp *pp* *pp* *pp*

Ped. Ped. Ped. Ped.

Cue 14

Cue 15

Density **Pitch**

Partials

Space *mf*

Density **Pitch**

Partials

Space *mf*

8^{vb} Ped. *mf* flz. *mf*

The musical score for "The Whistle" by John Williams is presented in a multi-staff format. The top two staves are for the piano, with the right hand in treble clef and the left hand in bass clef. The piano part includes various dynamics such as *p*, *mf*, *mp*, *ppp*, and *pp*, as well as articulations like *s.v.* (sustained vibrato), *vibrato*, and *flz* (flute-like). The piano part also includes performance instructions such as *whistle tone* and *ord. 15* (order 15). The bottom staff is for the tuba, with a bass clef and a *8vb* (8va) marking. The tuba part includes a *Red.* (Reduction) marking. The score is divided into measures by vertical bar lines. The tempo is marked as 6'45" and the key signature is one flat (B-flat major). The score includes a "Partials" section with a diagram of the harmonic series and a "Pitch" section with a diagram of the pitch contour.

A musical score for the song "The Rose Tree". The score is written for a piano, with a treble and bass staff. The key signature is one flat (B-flat), and the time signature is 4/4. The music is in common time, with a tempo marking of "Allegretto". The score consists of five measures. The first measure contains a treble clef, a bass clef, and a key signature of one flat. The second measure contains a treble clef, a bass clef, and a key signature of one flat. The third measure contains a treble clef, a bass clef, and a key signature of one flat. The fourth measure contains a treble clef, a bass clef, and a key signature of one flat. The fifth measure contains a treble clef, a bass clef, and a key signature of one flat. The score ends with a double bar line.

Ped. sempre

Cue 16

A handwriting practice staff featuring a bass clef on the left. The staff contains four sets of slanted lines for tracing, each beginning with a small 'v' shape. A small robot icon is positioned on the right side of the staff.

Detailed Schematic for Electronic Part

The following pages show a more detailed overview of the electronic events triggered by the cues in the score. The schematic is for information only – all the events unfold autonomously when the appropriate cue number is selected.


The table below shows a list of the abbreviations for the electronic processes used, together with an explanation where appropriate:

Fd	Fade level (dB)
Pbs	Play back speed (1 = normal speed)
Gs	Grain Size (milliseconds)
Gd	Grain Density (milliseconds)
Pitch	Transposition (Hz)
Partials	Add partials to source
Spectral Delay	Add spectral delay to source
Reorder Elements	Reorder elements in sound file

Channel One

(Bass Clarinet)

senza vib.



0" Cue 1

10" Cue 2

20" Cue 3

30"

40"

50"

1'0"

1 10" Cue 4

1 20"

1 30"

pbs 1

gs 100

gd100

fd -15

pbs 0.1

fd -25

fd -90

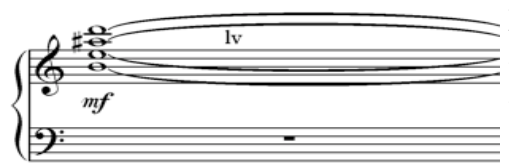
gs 30

gd 1000

Channel Two

(Piano)

lv



pbs 1

gs 100

gd100

pitch -200


fd -15

fd -90

Channel Three

(Flute)

senza vib



pbs 1

gs 100

gd100

pbs 0.1

pitch -400

fd -15

pitch -500

spectral delay 0.4

fd -30

partials

70"

20"

order


disorder

90"

Channel One

(Bass Clarinet)

senza vib.



gs 30

gd 1000

1 30"

Cue 5

1 40"

1 50"

2' 0"

2 10"

2 20"

2 30"

2 40"

2 50"

pbs 0.1

fd -15

gd 4000


fd -90

pitch -600

Channel Two

(Piano)

6



spectral delay 0.3

pbs -0.4

gs 250

fd -15

pitch 200

gd 2000

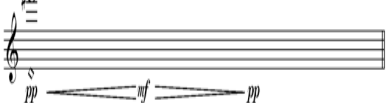
fd -90

pitch -800

Channel Three

(Flute)

harmonic



gd 3000

pitch 100

fd -90

gs 600

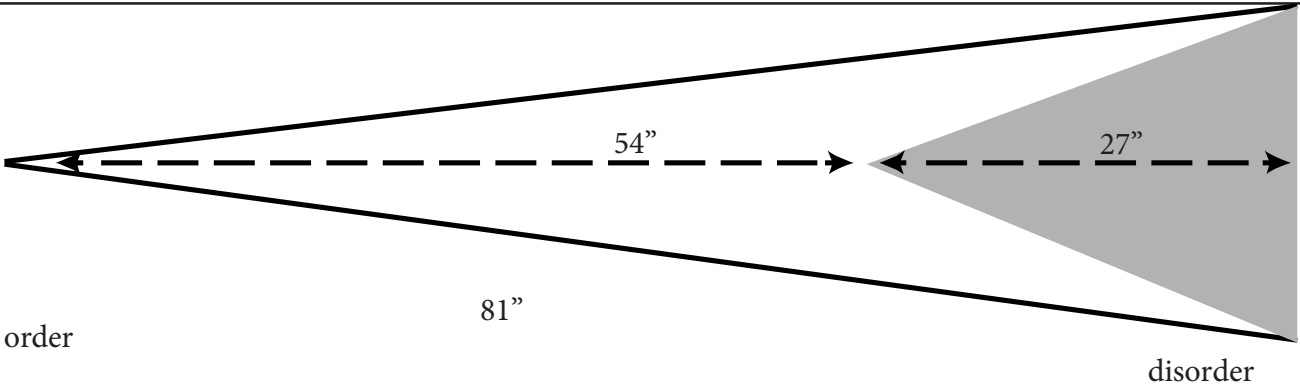
gd 1000

fd -15

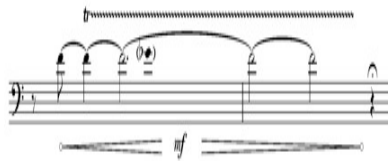
partials

pitch -800

Electronic
s Frame 2



Channel One
(Bass Clarinet)



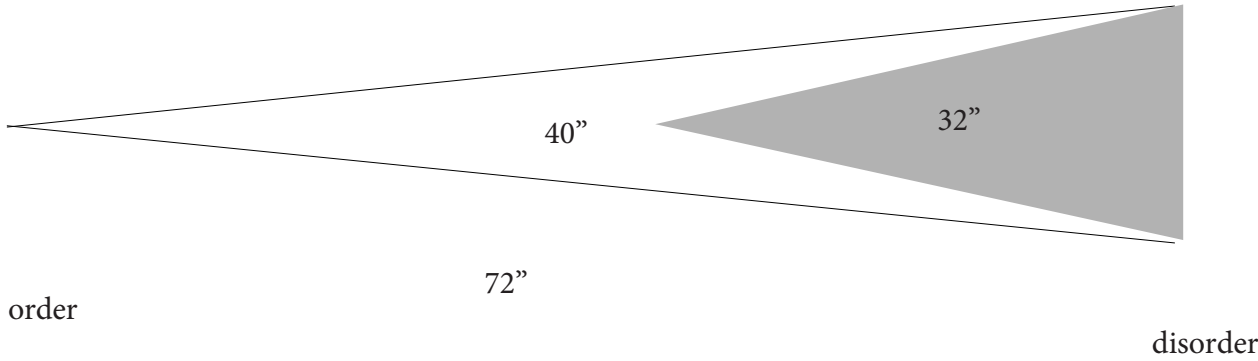
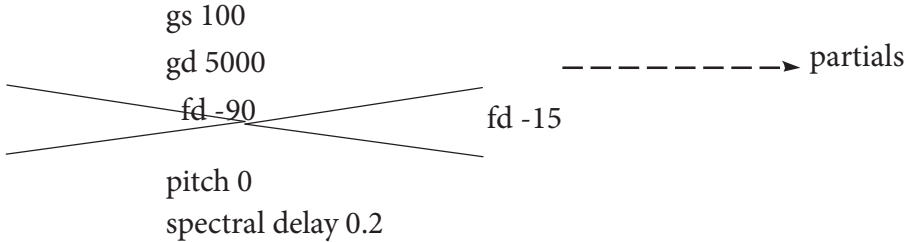
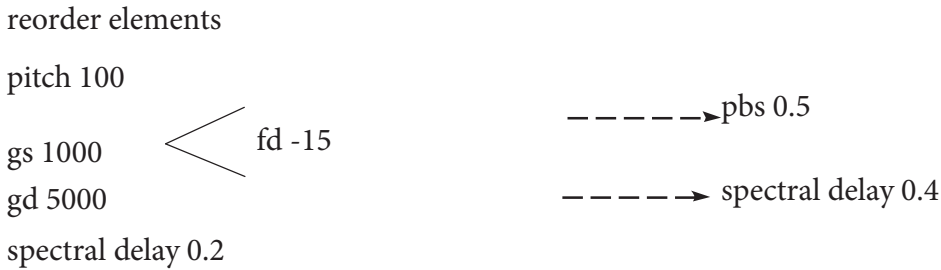
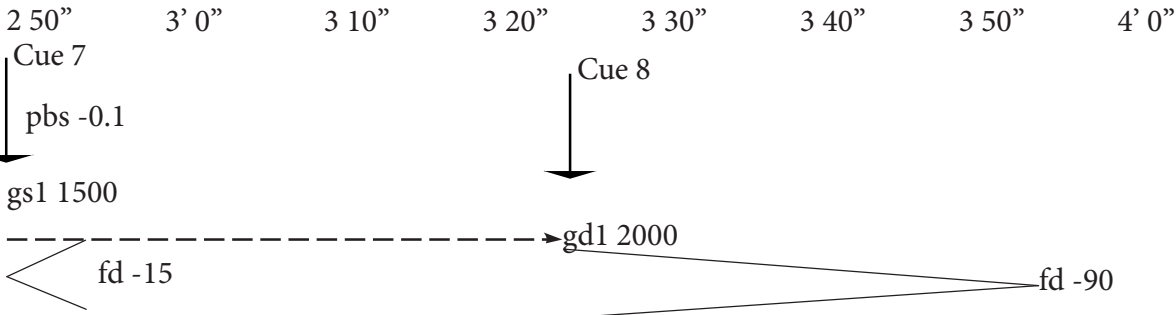
Channel Two
(Piano)



Channel Three
(Flute)




Electronic
s Frame 3



Channel One
(Bass Clarinet)

slap tongue



gs 100
gd 100
pitch 0

reorder elements
off

4' 0"

Cue 9

4 10"

4 20"

4 30"

4 40"

Cue 10

4 50"

5' 0"

pbs -0.4

fd -15

fd -90

Channel Two
(Piano)

play the note while finding the harmonic inside the piano with the other hand. Find the 7th harmonic



gs 100
gd 100

partials
off
pbs 0.2

fd -20


fd -90

pitch 0

pitch -400

Channel Three
(Flute)

timbral trill



gs 100
gd 100

pbs 0.1

partials
off

fd -20

fd -90

pitch 0

pitch 400

Electronic
s Frame 4

28"


35"

63"

order

disorder

Channel One
(Bass Clarinet)



5' 0"5' 10"5' 20"5' 30"5' 40"5' 50"6' 0"

Cue 11

Cue 12

gs 200

fd -15

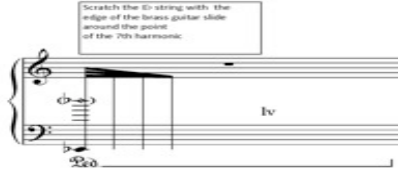
spectral delay 0.4

pitch -800

gd 4000

fd -90

Channel Two
(Piann)




fd -90

fd -15

pitch -200

partials

Channel Three
(Flute)



fd -90

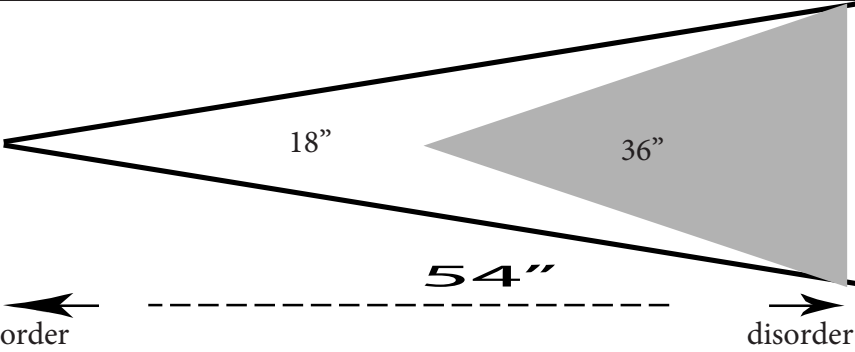
fd -15

pitch 200

pbs -0.1


partials

Electronic
s Frame 5



Channel One

(Bass Clarinet)



6' 0"

Cue 13

6 10"

Cue 14

6 20"

6 30"

6 40"

fd -15

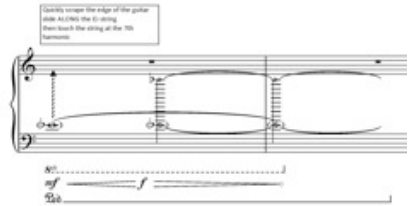
gs 100

gd 100

fd -90

Channel Two

(Piano)



fd -90

gs 800

fd -15

partials
(balance 0.4)


gd 2000

pitch 200
(balance 0.4)

spectral delay 0.4

Channel Three

(Flute)



fd -90

gs1000

fd -15

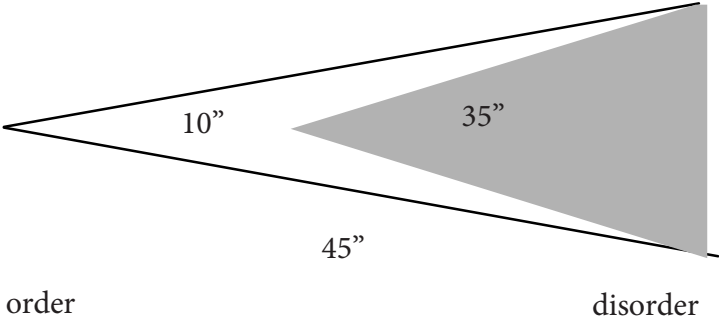
partials
(balance 0.4)

gd 4000

pitch 200
(balance 0.4)

spectral delay 0.4

Electronic
s Frame 6

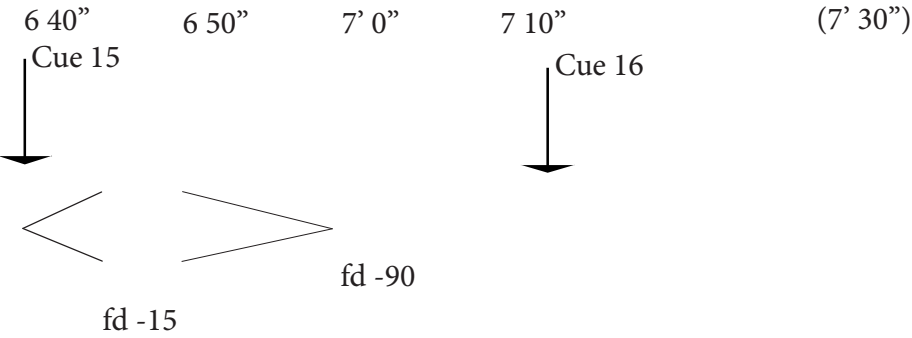


order

disorder

Channel One
(Bass Clarinet)

musical notation for Channel One (Bass Clarinet) with dynamics mf, f, mf and a note marked 'emphatic as notes'.



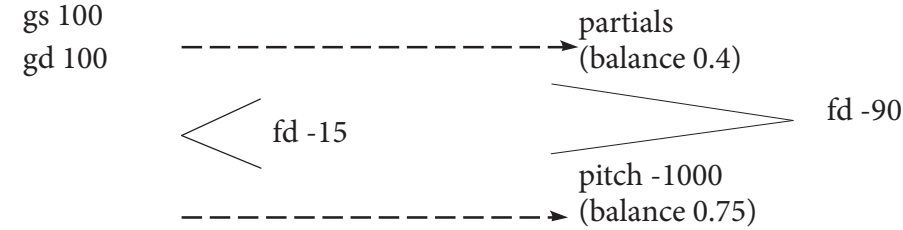
Channel Two
(Piano)

musical notation for Channel Two (Piano) with dynamics mp, p and a note marked 'Bounce the piano side off'.



Channel Three
(Flute)

musical notation for Channel Three (Flute) with dynamics f, fff and a note marked 'jet whistle'.



Electronic
s Frame 7

